Please cancel claims 33-34, 43 and 51-59, without prejudice.

Please amend claims 32, 35, 38 and 44 as set forth on the enclosed pages.

REMARKS

Claims 51-52 were canceled to obviate the indefiniteness rejection.

Claims 53-59 were canceled in view of the Examiner's withdrawal of these claims as being drawn to a non-elected invention.

Independent claim 32 has been amended to incorporate the features of canceled claims 33, 34 and 43. The present invention concerns a method of controlling a laser module in a wavelength division multiplexing (WDM) application, more especially controlling a laser module during initial powering up of the module (page 1, final paragraph) to add a new wavelength channel to the system. The method comprises the steps of: a) before applying a laser current to operate the laser module, establishing a predetermined laser temperature using the temperature control means and setting the attenuation of the attenuator to a maximum attenuation; b) applying a laser current having a value which produces a nominal desired wavelength and controlling the laser current to give a wavelength of operation substantially equal to the desired wavelength; and c) reducing the attenuation of the attenuator to a level to give a predetermined output power from the laser module. It should be noted that claim 32 explicitly requires *the steps of the method to be executed in the recited order*.

The method of the invention enables additional wavelength channels, with a precisely controlled wavelength and power, to be added to a WDM telecommunications system. In dense WDM systems, the channel spacing is of the order of 100 GHz or less and it is essential that when the laser module is powered up, it outputs radiation at precisely the desired wavelength to prevent corruption of existing wavelength channels on the system. The method of the invention eliminates the need for an optical switch on the output of the module. Such optical switches have a number of drawbacks compared to variable optical attenuator: i) a high insertion loss (typically 0.8dB), ii) prohibitively expensive, and iii) reliability, since optical switches are typically based on electro-mechanical devices.

Although a variable optical attenuator is incapable of achieving total isolation in its "off-state" (as can be achieved by an optical switch), as would be necessary when using the known methods of controlling the laser to prevent radiation being emitted from the module and into the system during wavelength stabilization of the module, the method of the present invention enables the use of a variable optical attenuator. This is achieved by stabilizing the laser temperature before applying any laser current, and then only applying the laser current with the attenuator set to maximum attenuation. Furthermore, since the current is initially applied having a value which is known to produce a nominal desired wavelength, any radiation that might be emitted during wavelength stabilization will not interfere with any existing wavelength channels.

Claims 32-52 were rejected as being obvious over U.S. Patent No. 6,438,147 to Roychoudhuri in view of European Patent No. 910184 to Kawasaki and/or U.S. Patent No.

5,754,571 to Endoh. As discussed, claim 32 has been amended by this response to more clearly distinguish the invention over the referenced art and now includes the further limitations of claims 33, 34 and 43. Although it is believed that the objections are traversed in view of these amendments, the relevance of the referenced art in relation to the amended claim will now be discussed.

It is asserted that Roychoudhuri teaches a method of controlling a laser module using temperature control means to control the laser temperature and controlling a laser current to achieve a desired wavelength of operation. It is acknowledged that control of laser temperature and laser current is well known. It is further asserted that Kawasaki and/or Indoh teach controlling the laser output power using a variable optical attenuator. Again, it is accepted that it is known to use a variable optical attenuator to control the output of a laser module.

It is submitted that none of the cited art concerns the control of a laser during powering up. It is further submitted that were the documents combined in the way suggested by the Examiner, this would not result in a disclosure of the invention since the cited art neither teaches nor directs the reader to i) setting the attenuation of a variable optical attenuator to a maximum attenuation prior to applying the laser current, ii) applying the laser current having a value which is known to produce a nominal desired wavelength and then controlling the current to achieve the desired wavelength, and iii) finally reducing the attenuation of the attenuator to achieve a desired output power. Accordingly, it is submitted

that the present invention as defined by amended claim 32 involves an inventive step over the cited art.

Entry of these amendments is as a matter of right.

Petition is hereby made for a one-month extension of the period to respond to the outstanding Official Action to April 4, 2003. A check in the amount of $110.00, as the Petition fee, is enclosed herewith. If there are any additional charges, or any overpayment, in connection with the filing of the amendment, the Commissioner is hereby authorized to charge any such deficiency, or credit any such overpayment, to Deposit Account No. 11-1145.

Wherefore, a favorable action is earnestly solicited.

Respectfully submitted,

KIRSCHSTEIN, OTTINGER, ISRAEL & SCHIFFMILLER, P.C.
Attorneys for Applicant(s)
489 Fifth Avenue
New York, New York 10017-6105
Tel: (212) 697-3750
Fax: (212) 949-1690

Alan Israel
Reg. No. 27,564

MARKED-UP VERSION OF AMENDED CLAIMS

32. (Amended) A method of controlling a laser module in a wavelength division multiplexing application, the module including temperature control means for controlling a temperature of a laser and a variable attenuation attenuator connected to an output of the laser for controlling power of radiation output from the module, the method comprising the steps of, in the order given:

(a) <u>before applying a laser current to operate the laser module,</u> establishing a predetermined laser temperature using the temperature control means<u>, and setting the attenuator to a maximum attenuation</u>;

(b) <u>applying the laser current having a value which produces a nominal desired wavelength, and</u> controlling [a] <u>the</u> laser current to give a wavelength of operation substantially equal to [a] <u>the</u> desired wavelength; and

(c) <u>reducing the maximum attenuation of the attenuator to a level to give</u> [establishing] a predetermined output power from the laser module [by means of the attenuator].

35. (Amended) The method according to claim [33] <u>32</u>, wherein the attenuation is reduced gradually <u>during step (c)</u>.

38. (Amended) The method according to claim 35, wherein the attenuation is [changed] <u>reduced</u> in ramp fashion.

44. (Amended) The method according to claim [43] <u>32</u>, wherein step (b) utilizes two wavelength-monitoring means having maximum sensitivity at wavelengths respectively slightly greater than and less than a nominal wavelength of operation.